a plurality of electron emission devices disposed on said first layer or said second layer of the substrate structure; and

a plurality of row direction wirings and a plurality of column direction wirings in which the plurality of electron emission devices are matrix-wired.--

REMARKS

This application has been reviewed in light of the Office Action dated February 14, 2002. Claims 1-5, 10-22 and 32-44 are now presented for examination. Previously non-elected Claims 6-9 and 23-31 have been canceled without prejudice and without disclaimer of subject matter, and Applicants reserve the right to present those claims in a later filed divisional application.. Claims 1-5 and 10-16 have been amended to define still more clearly what Applicants regard as their invention. New Claims 32-44 have been added to provide Applicants with a more complete scope of protection. Claims 1 and 32 are in independent form. Favorable reconsideration is requested.

Paragraph 2 of the Office Action states that "Claims 1-5 and (10-22)/1-5 are rejected under 35 U.S.C. 112, second paragraph," as indefinite. Without conceding the propriety of this rejection, various ones of the claims have been amended to even further ensure that the claims comply fully with the requirements of Section 112, second paragraph, with special attention to the points raised in paragraph 2 of the Office Action. For example, the word "structure" has been inserted after "substrate" in the preamble of various ones of the claims, in accordance with the Examiner's suggestion in paragraph 2 of the Office

Action. Accordingly, withdrawal of the Section 112, second paragraph, rejection is respectfully requested.

Paragraph 4 of the Office Action states that "Claims 1, 2, (10-13)/(1 & 2) and (14-22)/(11-13)/(1 & 2) are rejected under 35 U.S.C. 102 (a or b or e - depending upon effective filing date-) as being clearly anticipated by" European Patent Application EP 0 850 892 A1 (Nishimura et al.). Paragraph 5 of the Office Action states that "Claims 1, 2, (10-13)/(1 & 2) and (14-22)/(11-13)/(1 & 2) are rejected under 35 U.S.C. 102 (a or b or e - depending upon effective filing date-) as being clearly anticipated by" European Patent Application EP 0 865 931 A1 (Miyamoto et al.). Paragraph 7 of the Office Action states that Claims 3-5 are rejected under 35 U.S.C. § 103(a) as being unpatentable over either Nishimura et al. or Miyamoto et al.

Initially, Applicants respectfully submit that neither Nishimura et al. nor Miyamoto et al. qualifies as a reference under 35 U.S.C. § 102(e) against the claims of the present application, for the following reasons. Section 102(e) recites as follows:

> (e) [A person shall be entitled to a patent unless] the invention was described in–
>
> (1) an application for patent, published under section 122(b), by another *filed in the United States* before the invention by the applicant for patent, except that an international application *filed under the treaty defined in section 351(a)* shall have the effect under this subsection of a national application published under section 122(b) only if the international application *designating the United States* was published under Article 21(2)(a) of such treaty in the English language; or
>
> (2) a patent granted on an application for patent by another filed *in the United States* before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a) . . . . (Emphasis added).

In the instant case, Nishimura et al. and Miyamoto et al. both are published versions of applications filed in the European Patent Office. Although those European Patent Office applications were published in the English language, those applications were neither applied for in the United States nor published under Section 122(b). Neither are Nishimura et al. and Miyamoto et al. international applications published under Article 21(2)(a), filed under Section 351(a), and designating the United States, or patents granted on respective applications filed in the United States. For these reasons, it is believed that neither Nishimura et al. nor Miyamoto et al. qualifies as a reference under 35 U.S.C. § 102(e) against the claims of the present application, and thus the withdrawal of the Section 102(e) rejections set forth in the Office Action is respectfully requested.

Applicant now offer the following comments with regard to the remaining rejections set forth in the Office Action.

Independent Claim 1 is directed to a substrate structure which is a precursor to an electron source, and on which an electron emission device of the electron source is to be disposed, the electron emission device including at least a conductive film. The substrate structure comprises a substrate containing Na, a first layer containing SiO_2 as a main component formed directly or indirectly on the substrate, and a second layer containing an electron conductive oxide formed directly or indirectly on the substrate. The first and second layers are disposed adjacent a side of the substrate where the electron emission device is to be disposed.

Nishimura et al. refers to a device comprising a substrate 1, a pair of device electrodes 2 and 3, an electroconductive film 4, and an electron-emitting region 5. Reference numeral 6 denotes a "de-sodiumized" layer, a sodium-capturing layer, a multilayer structure combining the two, or a de-sulfurized layer. The substrate 1 comprises sodium.

Similarly, Miyamoto et al. refers to an electron-emitting element wherein a titanium oxide film 6 is sputtered on a soda lime glass substrate 1. A Pt film is deposited by a vacuum deposition process. The photoresist pattern is dissolved in an organic solvent to lift off the deposited film, thereby forming electrodes 2 and 3 with a gap therebetween (see, e.g., page 21, Step a).

Applicants respectfully submit that, while Nishimura et al. and Miyamoto et al. may be well-suited for their intended purposes, nothing in either of those references would teach or suggest a substrate structure which is a precursor to an electron source, and on which an electron emission device of the electron source is to be disposed, wherein the substrate structure comprises a substrate containing Na, a first layer containing SiO_2 as a main component formed directly or indirectly on the substrate, and a second layer containing an electron conductive oxide formed directly or indirectly on the substrate, and the first and second layers are disposed adjacent a side of the substrate where the electron emission device is to be disposed, as recited in Claim 1.

For at least these reasons, Claim 1 is deemed clearly patentable over Nishimura et al. and Miyamoto et al., whether considered separately or in combination.

Independent Claim 32 recites subject matter that is similar in many relevant respects to that recited in Claim 1, and also is believed clearly patentable over those references for substantially the same reasons as is Claim 1.

A review of the other art of record has failed to reveal anything which, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as references against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration or reconsideration, as the case may be, of the patentability of each on its own merits is respectfully requested.

It also is noted that Applicants have received an initialed Form PTO 1449 (copy enclosed) confirming that the Examiner considered and made of record all of the art cited in the Information Disclosure Statement filed on May 11, 2000, except for U.S. Patent 4,954,744 cited therein, which was not been initialed by the Examiner. Applicants now respectfully request that the Examiner consider that patent, if he has not done so already, and also request that the Examiner issue a written confirmation for the record confirming that U.S. Patent 4,954,744 has been considered and made of record in this application. If the Examiner needs an additional copy of that patent, such will gladly be supplied upon request.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE TO CLAIMS

1. (Amended) A substrate [for forming] structure which is a precursor to an electron source [in], and on which an electron emission device of the electron source is to be disposed, the electron emission device including at least a conductive film, said substrate structure comprising:

a substrate containing Na;

a first layer containing SiO_2 as a main component formed directly or indirectly on said substrate; and

a second layer containing an electron conductive oxide formed directly or indirectly on said substrate,

wherein said first and second layers are disposed adjacent a side of said substrate where the electron emission device is to be disposed.

2. (Amended) The substrate structure [for forming electron source] according to claim 1, wherein said first layer is formed on said substrate containing Na, and said second layer is formed on the first layer.

3. (Amended) The substrate structure [for forming electron source] according to claim 2, wherein said second layer contains SiO_2 as its ingredient.

4. (Amended) The substrate structure [for forming electron source] according to claim 2, wherein said first layer contains at least one kind of element to be selected from an element group comprising P, B, and Ge.

5. (Amended) The substrate structure [for forming electron source] according to claim 3, wherein said first layer contains at least one kind of element to be selected from an element group comprising P, B, and Ge.

6. (Canceled)

7. (Canceled)

8. (Canceled)

9. (Canceled)

10. (Amended) The substrate structure [for forming electron source] according to any of claims 1 through [9] 5, wherein [said electron emission device comprises: a] the conductive film [having] has an electron emission portion which is

disposed on said first or second layer[;], and said electron emission device also includes a pair of electrodes connected with the conductive film.

11. (Amended) An electron source comprising:

a substrate structure according to any one of claims 1 through [9] 5; and

[an] the electron emission device disposed on said first layer or said second layer of the substrate structure.

12. (Amended) An electron source comprising:

a substrate structure according to any one of claims 1 through [9] 5; and

a plurality of electron emission devices disposed on said first layer or said second layer of the substrate structure.

13. (Amended) An electron source comprising:

a substrate structure according to any one of claims 1 through [9] 5; and

a plurality of electron emission devices disposed on said first layer or said second layer of the substrate structure; and

a plurality of row direction wirings and a plurality of column direction wirings in which the plurality of electron emission devices are matrix-wired.

14. (Amended) The electron source according to claim 11, wherein said [electron emission device comprises: a] conductive film [having] has an electron emission portion which is disposed on said first or second layer[;], and said electron emission device also includes a pair of electrodes connected with the conductive film.

15. (Amended) The electron source according to claim 12, wherein [said electron emission device comprises: a] the conductive film [having] has an electron emission portion which is disposed on said first or second layer[;], and said electron emission device also includes a pair of electrodes connected with the conductive film.

16. (Amended) The electron source according to claim 13, wherein [said electron emission device comprises: a] the conductive film [having] has an electron emission portion which is disposed on said first or second layer[;], and said electron emission device also includes a pair of electrodes connected with the conductive film.

23. (Canceled)

24. (Canceled)

25. (Canceled)

26. (Canceled)

27. (Canceled)

28. (Canceled)

29. (Canceled)

30. (Canceled)

31. (Canceled)